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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/519,052	12/22/2004	Cristiano Castello	NL 020564	6803
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EXAMINER RUSH, ERIC				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/519,052

Applicant(s)

CASTELLO ET AL.

Examiner

ERIC RUSH

Art Unit

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6 and 15-23 is/are rejected.
- 7) ☒ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/S508)
- Paper No(s)/Mail Date 9/26/2005
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The specification lacks bolded section headings.

Appropriate correction is required.

Claim Objections

2. Claims 5, 7-14, and 20-23 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

- Claim 23 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention appears to be directed towards a computer program, which is not patentable eligible subject matter. Any computer executable software code must be stored in a computer readable storage medium to enable the underlying

functionality. A structural and functional interrelationship between the computer program and the structural elements of the computer, which would permit its functionality to be realized, should be included in the claim. An example of acceptable language under 35 U.S.C. 101 would be "a computer readable medium storing a computer program...".

- Claims 20-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims as recited fail to be directed to either a process (a method) or a product (an article), but rather overlap two different statutory classes. As drafted 35 U.S.C. 101 sets forth the statutory classes of invention in the alternative only.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 23 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- Claims 20-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims

appear to be directed to both a process (a method) and a product (an article); such a recitation is ambiguous and indefinite (See MPEP 2173.05(p)).

- With regards to claim 23, the phrase(s) "can be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-4, 6, 15-16, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Tan ET al. U.S. Patent No. 6,625,318.

- With regards to claim 1, Tan et al. teach a method of detection of erroneous image sample data of defective image samples from a plurality of image sample data comprising a first number of image sample data

assigned to a first color (Tan et al., Column 3 Lines 47 – 67, Column 4 Lines 27 – 48) and at least a second number of image sample data assigned to a second color, (Tan et al., Column 3 Lines 47 – 67, Column 4 Lines 27 – 48) wherein an image sample data under test is tested with respect to further image sample data (Tan et al., Column 3 Lines 48 – 65) and a first kind of test is performed with respect to a further image sample data assigned to the same color as that to which the image sample data under test is assigned; (Tan et al., Column 3 Line 30 – Column 4 Line 2 and Column 4 Lines 16 – 48, “In a Bayer pattern sensor, it may be desirable to consider only those neighboring pixel, in the same color plane (R,G, or B)”) and a second kind of test is performed with respect to still a further image sample data assigned to a different color than that to which the image sample data under test is assigned. (Tan et al., Column 3 Line 30 – Column 4 Line 2 and Column 4 Lines 16 – 48, “In a Bayer pattern sensor, it may be desirable to consider only those neighboring pixel, in the same color plane (R,G, or B)”)

- With regards to claim 2, Tan et al. teach a method as claimed in claim 1, characterized in that an image sample data comprises a value of a pixel corresponding to an image sample. (Tan et al., Column 7 Lines 34 - 53)

- With regards to claim 3, Tan et al. teach a method as claimed in one of the preceding claims, characterized in that a comparison of the image sample data under test with regard to a threshold value is made, (Tan et al., Fig. 4, 5a, and 5b, Column 5 Line 57 – Column 6 Line 28, Column 6 Line 66 – Column 7 Line 15) in particular a comparison with a maximum value of noise level. (Tan et al., Column 5 Lines 6 – 35, the variance of an abnormal response, 0.15, is a tolerance for the maximum acceptable amount of noise, plus/minus 15%)
- With regards to claim 4, Tan et al. teach a method as claimed in claim 1, characterized in that a first or second kind of test is based on a maximum value comparison. (Tan et al., Figs 4, 5a, and 5b, Column 6 Line 49 – Column 7 Line 15)
- With regards to claim 6, Tan et al. teach a method as claimed in claim 3, characterized in that the threshold is defined as the sum of the variance and the offset. (Tan et al., Column 5 Line 25 – Column 6 Line 28, the generalized gamma distribution, which the function pixels follows is used to determine boundaries, stopping conditions which read on thresholds, which when reached classify a pixel as either functional or defective, the distribution used to determine the boundaries is a summation/integral of variance and a scaling factor, which reads on an offset)

- With regards to claim 15, Tan et al. teach a method of image processing wherein an image is provided by an optical system to an image color sensor adapted to detect various colors, in particular red, green or blue, and sensor the image as a plurality of image samples, (Tan et al., Fig. 7, Column 3 Lines 47 - 67) and wherein image sample data are read out from each single image sample of the image sensor and the image sample data comprise color information, in particular color information of red, green or blue, (Tan et al., Column 3 Lines 47 - 67, Column 4 Lines 27 - 48) the image sample data are transferred in an image signal from the image sensor to a signal processor, (Tan et al., Fig. 7, Column 8 Lines 44 - 65 and Column 9 Lines 21 - 44) and the signal processor derives a video output from the image signal, wherein erroneous image sample data of defective image samples are detected and corrected from the plurality of image sample data (Tan et al., Column 9 Lines 1 - 10 and lines 21 - 44) wherein image sample data is tested to thereby detect erroneous image sample data (Tan et al., Abstract, Column 3 Lines 9 - 29, Column 3 Line 30 - Column 4 Line 2) and erroneous image sample data is corrected by replacing erroneous image sample data by corrected image sample data, (Tan et al., Column 3 Line 60 - Column 4 Line 2) characterized in that the plurality of image sample data comprise a first number of image sample data assigned to a first color and at least a second number of

image sample data assigned to a second color, (Tan et al., Column 4 Lines 27 - 29) and wherein for image sample data under test the detection comprises the steps of: comparing the image sample data under test to a threshold value, (Tan et al., Fig. 4, 5a, and 5b, Column 5 Line 57 – Column 6 Line 28, Column 6 Line 66 – Column 7 Line 15) performing a first kind of test with respect to further image sample data assigned to the same color as that to which the image sample data under test is assigned, (Tan et al., Column 3 Line 30 – Column 4 Line 2 and Column 4 Lines 16 – 48, “In a Bayer pattern sensor, it may be desirable to consider only those neighboring pixel, in the same color plane (R,G, or B)”) performing a second kind of test with respect to still a further image sample data assigned to a different color than that to which the image sample data under test is assigned, (Tan et al., Column 3 Line 30 – Column 4 Line 2 and Column 4 Lines 16 – 48, “In a Bayer pattern sensor, it may be desirable to consider only those neighboring pixel, in the same color plane (R,G, or B)”) performing a plausibility test as a third kind of test, taking into consideration a previous and/or following test of still further image sample data. (Tan et al., Column 7 Lines 16 – 31)

- With regards to claim 16, Tan et al. teach a method as claimed in the preceding claim characterized in that for detection and correction a shift register, a threshold calculation and a memory are provided. (Tan et al.,

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Fig. 7, Column 8 Lines 44 - 65 and Column 9 Lines 21 - 60, the bus of Tan et al. reads on a shift register)

- With regards to claim 19, Tan et al. teach a method as claimed in claim 15 characterized in that the read-out from the image sensor is a serial read-out. (Tan et al., Column 9 Line 41)

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tan et al. U.S. Patent No. 6,625,318.

- With regards to claim 17, Tan et al. teach a method as claimed in claim 15 or 16 characterized in that the correction comprises an interpolation. Tan et al. fail to teach wherein the correction comprises an interpolation. However, the Examiner takes Official Notice of the fact that it is well known in the art to include an interpolation operation to provide a pixel value where the pixel value is missing or classified as defective. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Tan et al. with the well known concept of interpolation. This modification would have been prompted in order to provide for a more accurate representation of the missing/defective pixel value.

11. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tan et al. U.S. Patent No. 6,625,318 in view of Itoh U.S. Patent No. 7,164,497.

- With regards to claim 18, Tan et al. teach a method as claimed in claim 16. Tan et al. fail to teach the method characterized in that a one-bit-line-memory or a two-bit-line-memory is provided. Itoh teaches a defective pixel detection and correction method characterized in that a one-bit-line-memory or a two-bit-line-memory is provided. (Itoh, Column 7 Lines 28 – 39 and Column 8 Lines 7 – 21) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings

of Tan et al. to include the teachings of Itoh. This modification would have been prompted in order to buffer the data and account for the differences in rate at which data is locally received and processed.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Pourjavid U.S. Patent No. 6,529,622; which is directed to a method and apparatus for identifying defective regions in a discrete pixel detector.
- Yoshiwara et al. U.S. Patent No. 6,950,133; which is directed to a method of detecting defective pixels of a solid-state image-pickup device.
- Sundrehagen et al. U.S. Publication No. 2002/0168784; which is directed to agglutination assays.
- Haugen et al. U.S. Patent No. 5,546,091; which is directed to a pseudo-color display for enhanced visual target detection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC RUSH whose telephone number is (571)270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on (571) 272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ER

/Samir A. Ahmed/
Supervisory Patent Examiner, Art Unit 2624